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EXAMINER

NGUYEN, TRAN N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,209

Applicant(s)

TANAKA ET AL.

Examiner

Tran N. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-3 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-3, and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 20 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 3/30/04 have been fully considered but they are not persuasive because of the following:

Argument (1):

With respect to independent claim 1, Applicant argues that claims 1-13 of USP 1582 do not teach or suggest the limitations of:

- (a) at least a fan mounted to each of opposite axial ends of the rotor* for cooling a heat-generating member heated due to a generator output current;
- (b) the stator being disposed within a bracket having an exhaust window; and,*
- (c) said permanent magnets being permanent magnets of samarium-iron alloy containing titanium (Ti) and boron (B).*

Applicant adds to his argument that to support this double-patenting rejection, the Examiner must rely on the claims of USP'582. See MPEP 806.01 in the present instance, nowhere do the claims of USP'582 teach or suggest the above-quoted limitations of claim 1. Therefore, at least based on the foregoing, Applicant submits that independent claim 1 is patentably distinguishable over the applied references, either alone or in combination.

In response to these arguments, the applicant's attention is drawn to Prior-Art Figs. 12-13 in USP'582.

In Prior-Art FIGS. 12 and 13, the alternator for a vehicle is constructed such that a Lundell-type rotor (7) is rotatably mounted within a casing (3), *wherein fans (5) are fixedly*

attached to both ends of the rotor (7) in its axial direction. This read as “at least a fan mounted to each of opposite axial ends of the rotor” and of course the fan is for cooling a heat-generating member heated due to a generator output current. Also, *Fig. 12 also shows a stator (8) is fixedly attached to an inner wall surface of the casing (3), wherein the casing is shown with exhaust window* (Fig. 12, the features is unnumbered).

The Examiner take Official Notice that exhaust windows provided on the casings of alternators are well-known and are essential features of an alternator (see cited US Patent refs: 5,021,696 (fig. 1); 6,172,433 (fig 1); 6,144,138 (fig 1); RE36038 (fig 1); 5,708,318 (fig 2); 6,369,471 (fig 1) for evidence supporting this statement). Those skilled in the art would understand that without these air ventilation windows, i.e., exhaust window, for exchanging cooling air from outside to the inside, the rotor's fan would only circulating heat generated air within the alternator and no cooling air can enter inside the alternator. This would create thermal problem that potentially would damage the alternator.

The admitted Prior-Art FIGS. 12-13 of USP'582 are considered and treated as a separate prior-art reference that being admitted as prior-art reference that being incorporated in USP'582 by the applicants of USP'582. Therefore, admitted Prior-Art FIGS. 12-13 reference, as in USP'582, does discloses (a) *at least a fan mounted to each of opposite axial ends of the rotor* for cooling a heat-generating member heated due to a generator output current; and (b) *the stator being disposed within a bracket having an exhaust window*, even though the *claims' recitations* of USP'582 do not directly teach or suggest the above-quoted limitations (a-b).

Furthermore, Harris also discloses *at least a fan with blades (40) mounted to each of opposite axial ends of the rotor* for cooling heat generated therein (fig. 3A-3B).

Regarding *permanent magnets being permanent magnets of samarium-iron alloy containing titanium (Ti) and boron (B)*, as stated in the rejection of the Double Patenting, **Iwata** does teaches these limitations about magnet material composition.

Iwata teaches a PM is of samarium-iron alloy containing titanium (Ti) and Boron (B). Iwata discloses that the composition of the permanent magnet of samarium-iron alloy containing titanium and boron would have superior magnetic characteristics.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the alternator's rotor by selecting PM material composition of samarium-iron alloy containing titanium and boron, as taught by Iwata. Doing so would enable to improve efficiency of the alternator due to rotor having magnets with superior magnetic characteristics. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Thus, applicant alleged statement is false because the combination of USP'582 (prior art figs 12-13) and Iwata references does teach these limitations.

Argument (1):

The applicant further argues that there would have been NO motivation either in the references themselves or in the knowledge in the art, to combine the applied references to arrive at the present invention because Harris discloses that pockets 36 of a fan 24 contain the permanent magnets 38, and that when the fan 24 is assembled with rotor 10, a pocket 36 containing magnet 38 is pressed under a pole finger 22 of second pole piece 14 and above body 32 of first pole piece 12. See col. 2, lines 40-52. On the other hand, Mukai, for example, discloses that the magnets 38 are disposed on the rotor (not in pockets of a fan) and between the various claw poles (not under and above claw poles). Therefore, at least for these reasons, Applicant submits that one skilled in the art would NOT have combined Harris with the other applied references, to satisfy the limitations of Applicant's invention, as recited in claims 1.

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In response to applicant's argument that seems to suggest a bodily incorporating the two references to one another. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this instant case, the Examiner's position is that it would have been obvious to an artisan at the time the invention was made to apply Harris' *important teaching concept* of providing the rotor's magnets with corrosion-resistive holding members for protecting the PMs against corrosion.

All the arguments have been addressed and evidently they are not persuasive. The Double Patenting Rejections (as included below in this Office Action) is hereby maintained as valid rejections.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Double Patenting

The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and © may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. **Claims 1, 7-10** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **claims 1-13 of U.S. Patent 6333582** (hereafter, USP '582) in view of **Iwata** (US 5800728), **Mukai et al** (US 5903083), and **Harris et al** (US 5973143)

Claims 1-13 of USP'582 are similar to claims 1-3, and 7-10 of this application, particularly UPS'582 claims a claw-pole rotor comprising:

a pair of rotor iron cores (the present claimed first and second pole core members), in which plural claw-shaped magnetic poles, each approximately formed in a trapezoidal shape, are arranged in outer circumferential portions of disk-shaped basic portions at given intervals in a circumferential direction;

a winding wound around said basic portions for generating magnetic flux by the flow of an exciting current;

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plural reinforcing bodies (the represent claimed holding members), each approximately formed in a U-shape, and having wing portions arranged at both sides of an attaching portion having a flat plate shape, and disposed such that the attaching portion faces an inner circumferential wall surface of one of said claw-shaped magnetic poles, said wing portions being located on either side of said claw-shaped magnetic pole in the circumferential direction; and,

plural magnets, each independently and fixedly attached to a wing portion of each of said reinforcing bodies (i.e., holding members) and disposed on either side of said claw-shaped magnetic pole in the circumferential direction, for reducing magnetic flux leakage between claw-shaped magnetic poles; and wherein an elastic resin is filled between said claw-shaped magnetic poles and magnets.

The differences between the USP '582 and the present application are the following limitations:

- (a) the permanent magnets (PMs) are of samarium-iron alloy containing titanium (Ti) and Boron (B) and are independently attached to each of the rotor pawl-poles;*
- (b) the stator is a three-phase winding;*
- (c) the permanent magnets are supported by corrosion-resistive holding members surrounding said permanent magnets, and are independently attached to each of the rotor pawl-poles;*

Regarding limitations of subsection (a) herein, Iwata teaches a PM is of samarium-iron alloy containing titanium (Ti) and Boron (B). Iwata discloses that the composition of the permanent magnet of samarium-iron alloy containing titanium and boron would have superior magnetic characteristics.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the alternator's rotor by selecting PM material composition of samarium-iron alloy containing titanium and boron, as taught by Iwata. Doing so would enable to improve efficiency of the alternator due to rotor having magnets with superior magnetic characteristics. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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Regarding limitations of subsections (b) herein, Mukai teaches an alternator having stator is provided with three-phase winding. Those skilled in the art would realize that three-phase winding in the alternator's stator is the most efficient winding configuration for the alternator, particularly vehicle alternator. The Examiner takes Official Notice that alternators having stators with three phase windings are well known in the art.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the alternator by providing the stator with three-phase winding, as taught by Mukai. Doing so would enhance the efficiency of the alternator. Furthermore, doing so would require only routine skills in the art since alternators having three-phase are well known in the art.

Regarding limitations of subsections (c) herein, Harris, however, teaches a rotor having a plurality of PMs (38), each of which is surrounded by a corrosion-resistive holding member (36) for securely holding the PMs in place and protecting the PMs against corrosion, wherein each magnet, and the corresponding holding member, being independently secured to the pawl-pole. The holding member (36) having four sides surrounding four sides of the magnet. By completely surrounding and sealed the PMs (38) therein, the holding member fully enclosing the PMs and protecting them from corrosion (col 2 lines 42-55) while independently being secured therein the magnet and the corresponding holding member can be easily maintained or replaced.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by embodying the PMs with corrosion-resistive holding member, wherein each magnet, and the corresponding holding member, being independently secured to the pawl-pole, as taught by Harris. Doing so would provide means for securely holding the PMs in place and protecting the PMs against corrosion and independently being secured there in the magnet and the corresponding holding member can be easily maintained or replaced.

2. **Claims 2-3** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over USP'582, Iwata, Mukai, and Harris and further in view of **Nagayama et al (US 5779453)**.

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The combination of the above listed prior art substantially discloses the claimed invention, except for the added limitations of the following:

(a) the PMs are magnet powder bonded by resin, as in claim 2;

(b) the PMs are bonded magnets of Sm sub. 8.2, Fe sub. 75.6, Ti sub. 2.3, Boron sub. 0.9 and N sub. 13, as in claim 3.

Regarding limitations in subsection (a) *herein*, Nagayama, teaches a rotor magnets (5a, 5b) that are magnet powder bonded by resin. Nagayama teaches that the magnet powder bonded by resin would prevent eddy current being generated in the PM resulting in reducing heat in the rotor.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor of the alternator by selecting PM of magnet powder bonded by resin, as taught by Nagayama. Doing so would prevent eddy current being generated in the PM resulting in reducing heat in the rotor. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding limitations in subsection (4) *herein*, Iwata discloses a samarium-iron alloy containing titanium (Ti) and Boron (B) as well as Nitrogen (N). Iwata does not disclose the specific composition formula as recited in claim 3. However, those skilled in the art would understand that Iwata generally discloses the PM composition for producing high magnetic characteristics. It would have been obvious to an artisan to apply the Iwata's teaching of magnet material composed of Sm Fe Ti B N with specific material composition as in claim 3.

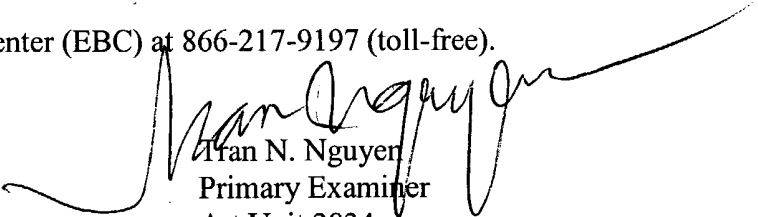
Thus, it would have been obvious to one skilled in the art at the time the invention was made to select bonded PMs of material composition: Sm sub. 8.2, Fe sub. 75.6, Ti sub. 2.3, Boron sub. 0.9 and N sub. 13. Doing so would require only routine skill in the art to select a suitable material for the intended use of the component. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tran N. Nguyen
Primary Examiner
Art Unit 2834